ON SCENE

THE NATIONAL MARITIME SAR REVIEW

DEPARTMENT OF TRANSPORTATION
U.S. COAST GUARD

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CHECK ALL AIDS TO NAVIGATION

About once a year we get a case which re-emphasizes the wisdom of the rule of thumb: "Check all aids to navigation when searching for survivors---somebody might be hanging on to one!" Here's another.

On the evening of 21 December 1977, Station Milford Haven received the report that three duck hunters were overdue. The three men had been out in a 16 foot outboard which was serving them as a floating duck blind. An air and surface search was started. Early in the morning, a Coast Guard Auxiliary Radio Station reported that the boat had drifted ashore with two people in it. The two survivors stated that their companion jumped on board a daybeacon as the boat drifted by it, in an unsuccessful attempt to moor to it. A helicopter, vectored to the beacon, picked up the third man who was suffering from exposure and frostbite.

So once again we say: "CHECK ALL AIDS TO NAVIGATION"

WHAT'S YOUR *"PAIN IN THE NECK?"*

- ***RED TAPE?***
- ***DUPLICATION?***
- ***DELAYS?***
- ***POOR PLANNING?***
- ***WASTE OF MATERIAL AND TIME?***
- ***INFERIOR PROCEDURES & METHODS?***

SUGGEST A BETTER WAY!

ON SCENE is a SAR publication published by the Commandant, U. S. Coast Guard as a source of information concerning current and proposed procedures as well as new developments in SAR. Articles contained herein are non-record and non-directive.

KUDOS CORNER

To: Secretary of the Navy

...I was a passenger aboard the Windjammer FANTOME...sailing out of Nassau... A violent storm hit; we lost our engines and were drifting about helplessly and at the mercy of the storm. We finally became shipwrecked on a shoal...It is my feeling that the captain and crew of the USS PETREL deserve a commendation in recognition of their heroic efforts in rescuing us...Also, please extend our thanks to the U. S. Coast Guard. The Coast Guard ship STEADFAST and the Coast Guard helicopters also participated in our rescue under very hazardous conditions. /s/ Jerry Appelbaum

To: Commandant, U. S. Coast Guard

Please accept my thanks to the Coast Guard for responding in time of need, not once, but several times. On a recent sailing trip down the coast of Texas towards Mexico, we called upon the Coast Guard to assist in removing an ill crew member, to assist in refloating our grounded boat, and to assist me in returning to Corpus Christi because of the death of my mother while I was at sea... In particular, I wish to thank the personnel of the Port Isabel, Texas Coast Guard Station...(and)...the personnel of the Coast Guard (Air) Station Corpus Christi. /s/ Chester J. Milczarek

To: Commander, Third Coast Guard District

...my son, Richard Kornahrens, and two companions were rescued by a Coast Guard helicopter from the ocean off Gilgo Beach near Fire Island inlet...LT Al Muccilli piloted the helicopter. I would like to express my appreciation and gratitude for accomplishment of this rescue. The key element in survival of the three young men was the time of response. In the cold water they could not have lasted much longer...I'd like to thank the crews at Fire Island Station and Floyd Bennett Field for their efforts. A couple of years ago...I spoke to CDR Walter Peterson from Washington and we discussed operations research, cost effectiveness and cost per life saved, etc. After an incident wherein my son's life was saved, I find it hard to be cost conscious and would urge the expansion of your helicopter fleet. I hope that Congress sees fit to support such an expansion. /s/ Herman Kornahrens

To: Rear Admiral N. C. Venzke

...I want to express my very deep appreciation and gratitude to the Coast Guard for the assistance, I received... Midway through the afternoon, I developed engine trouble...There was a strong odor indicating a possible gas leak...I called for assistance and the Cape Lookout Coast Guard responded immediately with instructions and then towed us back to the marina. I can't say enough about the concern and politeness of the young men who responded to my call...there is a deep sense of appreciation among both the sport and commercial fishermen for the presence of the Coast Guard...I think you should know that many men and women have a deep and abiding respect for your Coast Guard and it is a respect that is well deserved... people are well aware of their presence and are grateful for it...I'm sure you take a great deal of pride in the accomplishments of the Guard and, to be sure that pride is justifiable... /s/ John Maiolo, Professor and Chairman, Dept. of Sociology and Anthropology, East Carolina University

RESCUE AT BEAR MOUNTAIN

Here is a straightforward, well executed case that makes us all proud of our SAR teams. Unfortunately two victims of the crash were deceased (probably upon impact), but two others were saved. Conditions were difficult and the crew worked straight through for almost one and one-half days. The complete story from Coast Guard Air Station, Cape Cod follows:

RESCUE SYNOPSIS CHEROKEE PA28 N9006K DOWN BEAR MOUNTAIN, VERMONT

After receiving information from RCC Boston that a small aircraft had crashed in Western Vermont, the HH-3F CGNR 1473 departed at 2357R, 15 March 1978. The enroute weather was 3000 ft., broken, wind NW at 20 knots, and freezing level on surface. Our route had to be detoured to the south to avoid mountain peaks which rose through the ceiling. The aircraft had no radar, an unreliable radar altimeter, an unreliable tacan, and was unable to obtain radar advisories due to the low altitudes we were forced to use because of icing.

We arrived on scene at 0221R, 16 March 1978. We were able to pick up an ELT, but not able to home directly due to signal reflections off the mountains. Because we were unable to search effectively in mountain crest areas due to low ceilings and darkness, we landed at Glens Falls Airport at 0251R to wait for ceilings to lift, or sunrise to improve visibility. At 0545R we were airborne enroute the mountain peak areas. Because of the improved visibility, we were able to get in among the ridges and were able to home on the ELT. We located the wreckage at 0600R. The wreckage was located on a heavily wooded ridge 3,250 ft. MSL and spread along a line 240 degrees magnetic from the first impact point for approximately 300 feet. Over 4 feet of snow covered the ground. The weather on scene was 3,000 ft., scattered to broken with clouds intermittantly obscuring the crash site. The wind over the site was 100 degrees at 15 knots and there were occasional snow showers. At 0620R we lowered AT2 MAYBERRY to a small, cleared area about 100 ft. below the wreckage to search for survivors. Upon reaching the ground, he discovered the snow was about 4 feet deep, and that he had to practically swim in order to proceed toward the wreckage. Several minutes later he called the helicopter on a portable radio, and reported he had located one female survivor in fairly good condition. She also stated that the other female passenger had an injured back, but was alive. She didn't know about the two men who had been in the front seats of the aircraft as they were both unconscious. At approximately 0640R, LCDR FISHER, via radio, requested two Vermont State policemen be made available to be flown to the site to assist AT2 MAYBERRY on the ground. This request was granted and we landed in a horse corral in Sandhurst, Vermont to pick up the two troopers. Back on scene, we lowered the troopers to the crash site. AT2 MAYBERRY radioed he had found a better spot for effecting the hoist of the survivors which was about 50 feet from the main wreckage. He then requested we lower the litter and the rescue basket to this spot. This being done, AT2 MAYBERRY advised that it would be a while before they were ready as they had to extract the survivor with the back injury from the wreckage. The helo forward fuel bypass light on the caution panel then

illuminated. LCDR FISHER flew the aircraft back to the Sandhurst landing site to shut down and investigate the problem. At this point AM2 FERRILL isolated and corrected the problem. While on the ground arrangements for transporting more rescue personnel and equipment to the crash site were made, however, before the loading on the helicopter was effected, AT2 MAYBERRY radioed that the survivors were readied and positioned for hoisting.

We returned to the crash site. At 0925R the two survivors were hoisted by AM2 FERRILL, up through the trees to the helicopter hovering 85 feet above ground. The survivor with the back injury was hoisted in the litter, the other survivor in the basket. At 0938R the helicopter departed enroute Glens Falls, NY where Glens Falls flight service station had made arrangements for an ambulance to meet the aircraft. At 0952R we landed and deplaned the survivors to the ambulance. After refueling, HH-3F CG 1473 departed Glens Falls and rearrived on scene. AT2 MAYBERRY radioed that he and the troopers had been unable to extricate the two deceased from the wreckage without disassembling equipment. Arrangements were then made with Vermont State Police and the equipment was picked up in Sandhurst. Meanwhile a ground rescue-investigation party on snowmobiles had been making their way up the mountain toward scene. The HH-3F CG 1473 flew back up to scene, lowered the equipment and then provided vectoring to the snowmobile party. After the parties arrival AT2 MAYBERRY was hoisted up to the helo which then departed for Glens Falls to refuel for the return trip to Cape Cod. A total of 10.0 hours were flown on the mission from the 2315R notification, 15 March until approximately 1600R 16 March 1978.

The crew of the HH-3F CG 1473 had been up since early morning 15 March, assumed alert crew duties at 1530R, and worked through until evening of 16 March with no sleep between. Another mission of 1.8 hours was flown by the crew earlier the evening of 15 March. The crew was:

LCDR William G. FISHER
(Aircraft Commander)

LT James C. PERRY
(Co-pilot)

AM2 Forrest A. FERRILL
(Flight Mechanic)

AT2 Jan R. MAYBERRY
(Avionicsman)

RECOGNITION CASH! SATISFACTION

IF YOUR SUGGESTION IS ADOPTED, YOU'LL GET ALL 3

THE TRANSPACIFIC OVERDUE - A PERPLEXING PROBLEM

A vessel which departs Hawaii enroute to California (or vice versa) and fails to arrive at its destination in a reasonable amount of time presents a most difficult problem to the Coast Guard Search and Rescue Mission Coordinator in trying to locate the vessel. The many different kinds of problems that the vessel could have encountered, and also the many possible positions of the vessel at the time these problems were encountered, make it almost impossible to conduct an accurate and effective search for the vessel in most cases.

When a person initially reports an overdue, there are a couple of questions that must be answered. First, is there reason for concern for the vessel; and second, is there enough information so that an accurate and effective search can be conducted, and if so, where?

Upon receiving the initial overdue report, it must be determined if, in fact, the vessel is actually overdue. Many times people do not accurately calculate or allow themselves enough time when planning a voyage from Hawaii to the mainland. While in some instances a sailing vessel can complete the crossing in two or three weeks, a perfect set of conditions must exist to accomplish this, and therefore, this is probably not the average crossing time for a sail boat. Just a few factors which can have an effect on the crossing time are the type of vessel, speed of advance of the vessel, course taken, and probably the most important factor, the weather. It is not uncommon, for example, for a sailing vessel to be becalmed anywhere from a couple of days to a week, or even longer, on a transpacific crossing.

For these and many other reasons, overdues between Hawaii and California are not measured in hours or even days as with coastal voyages, but are measured in weeks. Therefore, it might, in some instances, be approximately five or six weeks before a vessel is actually considered to be overdue to the extent that the possibility of searching enters the picture.

There are a couple of procedures short of searching that are followed to try and locate a vessel. Harbor checks are conducted wherever the overdue boat might possibly have landed. These extensive checks include contacting all the possible ports around the destination of the vessel, as well as the ports around the departure place of the vessel as it may have returned and just not notified anyone.

Urgent Marine Information Broadcasts (UMIB) and Hydropacs are still another means of trying to locate the vessel. These are radio broadcasts which are put out to boats and ships at sea that describe the vessel overdue and specifically ask for any information concerning the location and/or safety of the boat and people on board. Immediately, boats and vessels transiting the area are on the lookout for the overdue boat.

If, after all the available information is received and evaluated, it is determined that there is reason to believe that the vessel is definitely overdue and in danger or distress, the question as to whether an accurate and effective search can be conducted, and if so, where, comes into play.

If the only evidence of a distress is the fact that the vessel did not arrive at its destination in a reasonable amount of time, then there is not a most probable position or area to search because the vessel could have experienced problems anywhere or anytime during the voyage. When this is the case, because of the distance involved in a transpacific crossing, searching for the vessel is usually highly impractical.

Let us analyze, for example, the overdue sailing vessel between Honolulu and San Diego, or vice versa. From Honolulu to San Diego is about 2,275 miles. This is approximately the same distance as from San Diego to Washington, D. C. You can imagine searching an area from San Diego to Washington, D. C. This is, in many cases, exactly what is asked of

the Coast Guard.

If the vessel had been disabled on the first day after departure, it would have been adrift for the entire time since departure. If it were disabled on the last day, its position would be completely different. Since no particular position or area is indicated for a search many different situations and possibilities must be evaluated to determine where the vessel, or its liferaft, might be. To do this, C.A.S.P., Computer-Assisted Search Planning, is available to the search planner. This is a computerized tool which can determine where the highest probable search areas are located. What C.A.S.P. does is simulate a time and place of distress along the intended track of the vessel. Then the vessel or liferaft is drifted for the number of days and/or hours that have elapsed since the distress incident to the time of the expected search. The drift is determined by applying the following natural forces on the vessel or raft: (1) Average Sea Current - the drift due to the prevailing sea current acting over the ocean; (2) Wind Driven Current - the drift due to the current that is created by the winds blowing across the water; and (3) Leeway - the drift due to the wind acting upon the sail area of the vessel. After these factors are applied and the vessel is drifted the appropriate distance, a possible position of the vessel is provided. This position is only as accurate as the drift figured for. If the actual drift is not close to what is put into the computer, the position will not be accurate.

This procedure is then carried out by the computer for numerous other hypothetical times and positions of distress, up to a maximum of 44,000 times to be exact. If thousands of these solutions are plotted on a chart, the areas of higher probability of the position of the vessel will be defined. The computer provides a read-out in the form of a "map", which actually shows the most probable areas that the distressed craft will be located in.

Chart 1 shows the rhumbline and great circle tracklines between Honolulu and San Diego. The rhumbline appears the more direct route because of the distortion involved in a mercator projection chart (such as this chart portraying the earth's round surface on a flat surface). However, in reality, great circle courses are shorter because due to fact that the earth is not flat the arc of the great circle between two points on a mercator projection chart is the shortest distance. As can readily be seen on Chart 1, if it is not known which track the vessel was sailing, an additional error of up to approximately 120 miles can be introduced into the search problem. Another complicating error--sailing vessels do not normally sail right along their intended trackline. They range left and right of the trackline during their trek, tacking or adjusting to the varying directions and speeds of the surface winds encountered.

Chart #1

Two overdue situations were entered into the computer. The first from San Diego to Honolulu during the months of April and May; and the second from Honolulu to San Diego during the months of July and August. The ten areas, or cells, of highest probability of the distressed vessel's position for both situations are provided on Charts 2 and 3, respectively.

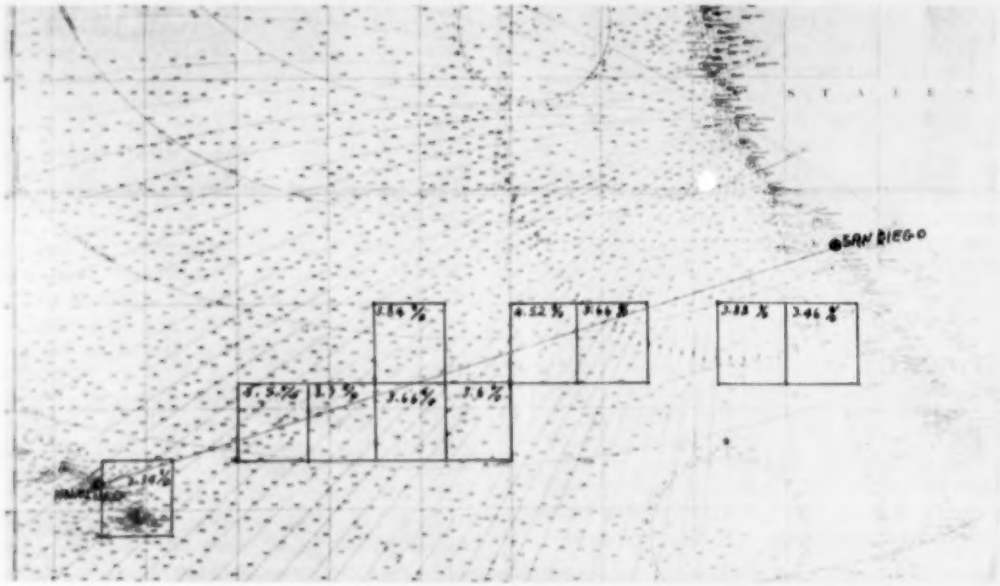


Chart #2

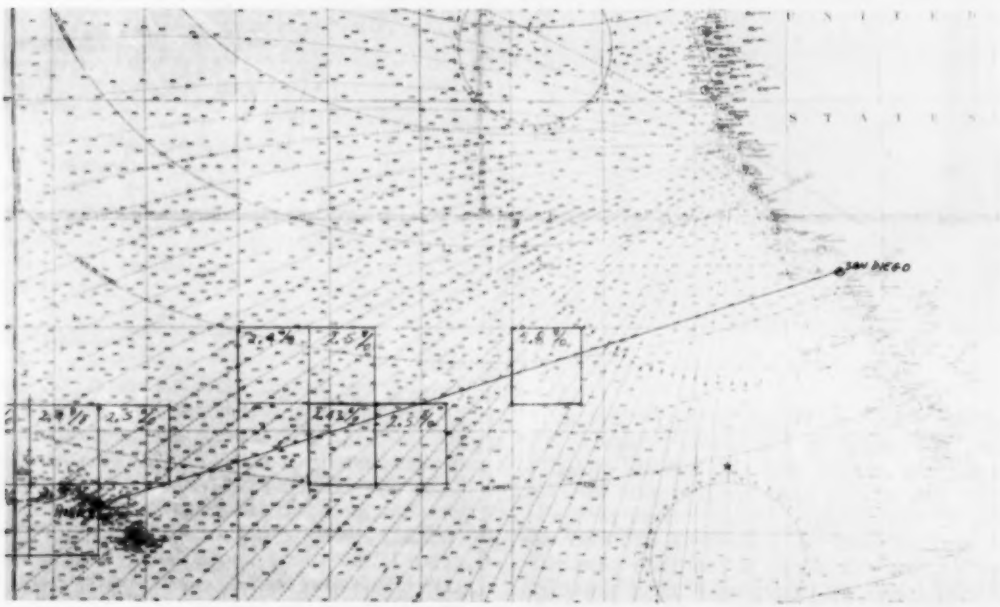


Chart #3

It should be remembered that these cells are only the ten highest, and not the complete map. Charts 5 and 6 are the complete map printouts, with the ten highest cells drawn in on them also. The probability that the vessel is located within the cell is written in.

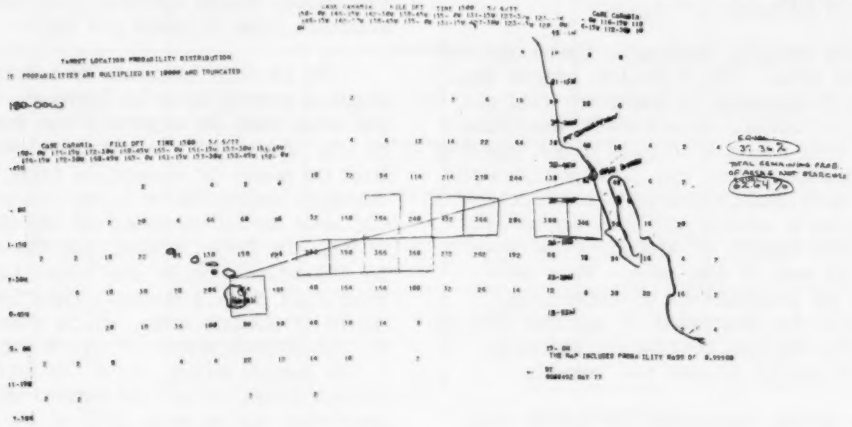


Chart #5

Each cell is 225 minutes of latitude by 225 minutes of longitude. This works out to be 225 miles by 200 miles, or each cell has an area of 45,000 square miles.

distress situations for a sailing vessel going from San Diego to Honolulu, and drifting them accordingly. If we add up only the top ten cells, Chart 2, we can see that the total is 37.36%. In other words, if we were to search the top ten cells, or an area of almost 1/2 million square miles, the chances that the vessel was in the area would be only 37.36%.

The map in the second situation,

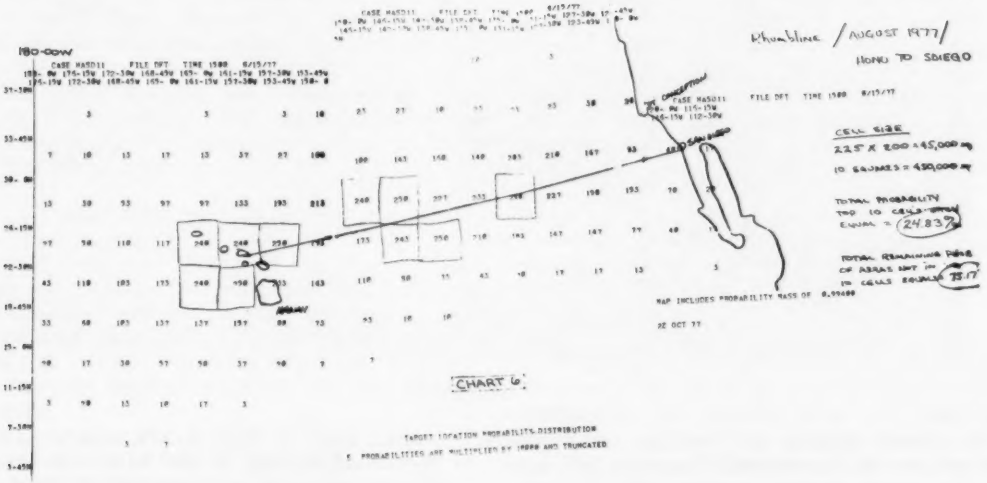


Chart #6

The map in the first situation, Chart 5, was arrived at by using 5000 different

Chart 6, was arrived at by using 3000 different distress situations for a sailing vessel going from Honolulu to San

Diego, and drifting them accordingly. If we add up these top ten cells, Chart 3, we see that in this case the total is only 24.83%. Thus, in this case, if we were to search the top ten cells, again almost 1/2 million square miles, the chances that the vessel was in the area searched would be only 24.83%.

As is readily apparent, these are not very good odds. For a medium length sail boat, on a day with 15 knots of wind and a 20% cloud cover, an aircraft searching at 1000 feet using a 10 mile track spacing (track spacing being the distance between the adjacent search tracks the aircraft will fly in a search pattern) would only have an 80% chance of sighting the vessel even if it was in the area. This percentage, or probability of detection, would again be decreased if weather and/or visibility was bad because it would be that much harder to see the vessel.

The effort necessary to search only the top ten cells, or 450,000 square miles, at a track spacing of 10 miles and a search speed of 190 knots would require 237 aircraft search hours, or three HC-130 aircraft ten hours a day for 8 days. This is, remember, only the time required to search the top ten cells and does not include aircraft transit time.

Table 1 and Chart 4 depict the transit times and the sizes of areas that could be searched according to how far offshore the search area is located. The following parameters are used in the calculations: type of aircraft - HC-130; transit speed - 290 knots; search speed - 190 knots; track spacing - 10 miles; total aircraft time allowed per day - 10 hours.

As is only logical, the farther offshore a search area is located, the smaller the area that an aircraft can search due to the increased transiting time, therefore, less on scene or searching time. For example, using Table 1, we can see that if the area to be searched is 200 miles offshore, the total transiting distance will be 400 miles, while the total transiting time will be 1.4 hours. This leaves 8.6 hours of search time, which when multiplied by the search speed of 190 knots, gives us 1,634 search miles, or a 128 mile square search area, or 16,384 square miles. Compare this to an area 1000 miles offshore, which in the end produces a 77 mile square search area or only 5,929 square miles. The relationship in the sizes of these search areas is represented in Chart 4. (The numbers in each area represent the distance offshore of the search area, either from San Diego or Hawaii, whichever is closer).

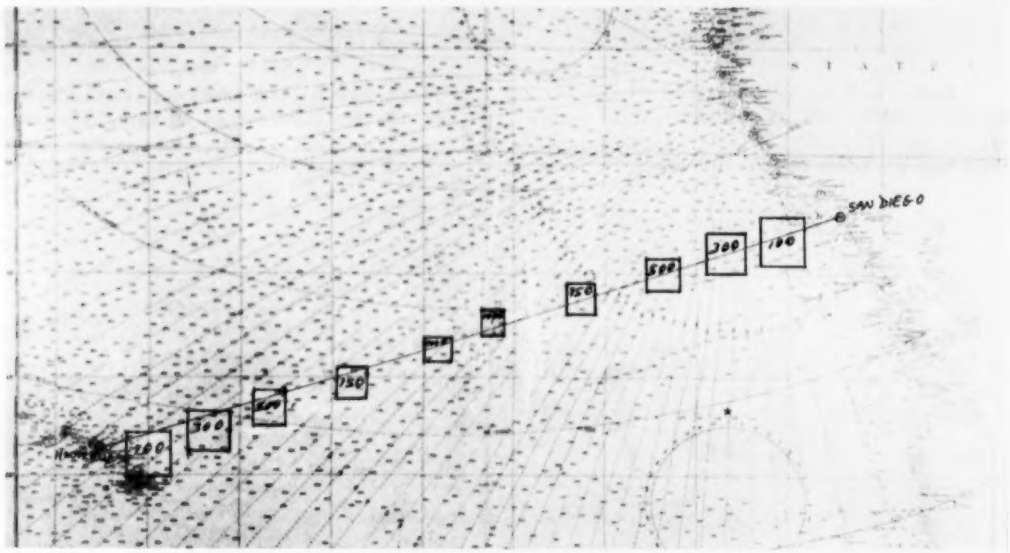


Chart #4

TRANSIT SPEED: 290 KTS
SEARCH SPEED: 190 KTS
TRACK SPACING: 10 MILES

SEARCH AREA SIZE VS DISTANCE OFFSHORE

DISTANCE OFFSHORE (MILES)	TRANSIT DISTANCE (MILES)	TOTAL TRANSIT TIME (HOURS)	REMAINING SEARCH TIME (HOURS)	SEARCH SPEED (KNOTS)	AIRCRAFT SEARCH MILES (MILES)	SEARCH AREA SIZE (MILES)	SEARCH AREA SQ. MILES
100	200	0.8	9.2	190	1748	133X133	17,689
200	400	1.4	8.6	190	1634	128X128	16,384
300	600	2.1	7.9	190	1501	122X122	14,884
400	800	2.7	7.3	190	1387	118X118	13,924
500	1000	3.4	6.6	190	1254	112X112	12,544
750	1500	5.2	4.8	190	912	95X95	9,025
1000	2000	6.9	3.1	190	589	77X77	5,929
1250	2500	8.6	1.4	190	266	52X52	2,704

TABLE 1 USE IN CONJUNCTION WITH CHART #4

Thus, to search an area 1000 miles offshore, picking for example the 3.6% cell on Chart 2, it would take one HC-130 aircraft 8 days, flying 10 hours per day, because of the distance from land.

It is true, however, that you could increase your track spacing to search more of an area. But, it must be remembered that as you increase the track spacing the probability of detection decreases. If the track spacing was increased to 20 miles, for example, the probability of just sighting the vessel, assuming it was in the area, would be only 47%.

It must also be remembered that while all this searching is going on the distressed vessel or liferaft would still be drifting. Thus, each day the search areas would have to be refigured to account for the change in position. Therefore, as each day passes, the probabilities change and provide another problem for the search planner.

Charts 2 and 3 differ considerably in the location of the top ten cells. This can be attributed not only to the fact that one vessel left from San Diego and the other left from Honolulu, but also to the fact that the season the voyage was made in was different. Due to differences in the winds and currents between seasons, the drift will be greatly affected and therefore the percentages of each area will be different.

The resources available for searching also figure into the search problem on transpacific crossings. There are six HC-130 aircraft, three in San Francisco, and three in Hawaii. However, not all of these long range aircraft will be airborne on one case: that is unrealistic. Only a certain number of aircraft can be made available due to the incidence of cases where there is a more urgent distress, the need for periodic maintenance, and other mission commitments. In most cases Navy and Air Force long range aircraft are also used as made available, usually on a limited basis.

We can see that there are many factors that must be considered when deciding on whether or not to search on a transpacific overdue. As has hopefully been pointed out, because of the great distances and areas involved, and because of the length of time a vessel or liferaft could have been adrift, enough search facilities or resources are not available or even capable of conducting an adequate and effective search.

Contd...on page 16

The Liferaft

MORALE:

A very important factor in survival. The mind breaks before the body.

Morale is maintained by good LEADERSHIP and TRAINING, by PRAYER and RELIGION and by SINGING. It is increased by additions to the WATER RATION as when RAIN follows a dry period, by signs of land and indications of RESCUE.

Morale is lowered when EXPOSURE is prolonged and irksome, when FOOD and WATER RATION are exhausted and when companions succumb.

Survivors in water. North Atlantic.

Lt. Commander W. G. Ogden, commanding officer of H.M.S. LADY MADELEINE, engaged in picking up survivors in World War II reported "Sally sent me a record called 'Off she goes to the North' which was a Scottish reel, and in her honour I used to play this over the ship's loudhailer system when we were picking up survivors from sinking ships. Many of the exhausted sailors we rescued from the drink (sea) told me afterwards that the music gave them hope, and courage to hold on a little longer, until we could get them on board the LADY MADELEINE."

Liferaft. Doldrums.

Tenth day. Kenneth Cooke reported "Gone was their pretence of being cheerful." Fourteenth day. "Morale was low after the Mate's outburst (attempted suicide)". Fifteenth day. "Most of the hands were extremely despondent and confidence was shrinking all round." Twenty first day. "All night I was obsessed with visions of the dead Mate. The shock of his burial had left its mark on us all. We were suffering bodily, mentally and spiritually." Forty ninth day. "We were liable and indeed likely to snap at any second just then and our minds were incapable of clear and lucid thinking."

Lifeboat. Indian Ocean.

Twelfth day. Captain Foster reported "The effect produced by drinking rain water was very satisfactory and reviving, and it is almost impossible to describe how much more cheerful it made everyone. It would also be very hard to describe the eagerness with which the crew looked on while an observation was being taken at noon, the sextant put away in the box, and the few figures scribbled on a piece of paper which would give us the latitude

for that day; or the smile which would greet the news that we were getting along alright. The mere sight of the instrument

seemed to give them added confidence, and each day, after I had worked the latitude, I would smile as though I was completely satisfied with the result, and nod to those around. This would have the desired effect on the crew who were so eagerly watching." Nineteenth day. "Rain easing off. All hands last night and this morning got their fill of rain water and managed to save some. Feel fit to carry on for a good while now." Although after the rain there was a good deal of discomfort, due to the extra soaking we had got, no one minded it at all, for the effect of drinking the water we were all able to catch put renewed life and energy into everybody. It would produce a striking contrast to the quiet grimness of perhaps only a few hours earlier, when we had been waiting and hoping that something of the sort would come along. There was never any amount of 'nerves' shown. The steadier ones greatly out-numbered those who were in any way inclined to be nervy." Twenty third day "Sighted land. Carpenter first to see it. All hands very excited and different feeling apparent. Gave the carpenter the tin of water promised to the first man to see anything."

Lifeboat. South Atlantic.

Twelfth day. Frank West reported "I found the hours of silent prayer and the complete solitude into which I was able to cast myself on these occasions, a source of strength, giving me renewed hope."

Ship's boat. Antarctic Ocean.

Reporting on six men on a sixteen days' voyage, F. A. Worsley wrote "As a rule when a sea wets a sailor through, he swears at it, and comprehensively and impartially curses everything in sight - but on this passage we said nothing when a sea hit us in the face. It was grin and bear it; for it was Sir Ernest's (Shackleton) theory that by keeping our temper and general cheeriness we each helped to keep one another up. We all lived up to this to the best of our ability."

Inflatable boat. North Atlantic.

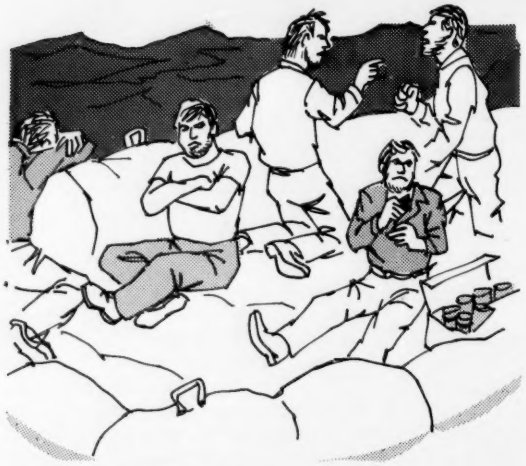
Dr. Bombard recorded "My morale came to depend more and more on the quick caprice of minor pleasures and disappointments." "My low spirits that night are perhaps explained by the fact that I was frozen, chattering with cold, soaked to the skin and encrusted with salt." "Increasing tiredness and exhaustion led me to expect the worst."

Sailing Yacht. North Atlantic.

Dr. Lewis, following his solo-Atlantic voyages of 1960 reported "People quickly go to pieces when morale breaks down. Morale is best maintained by knowing what to do."

Collapsible Canoe. North Atlantic.

Dr. Lindeman recorded "When I sailed across the Atlantic in my standard collapsible canoe in seventy two days, the main problem as far as I, personally, was concerned was that of morale and the capacity to keep my spirits up."



Raft. South Pacific.

Tahiti Nui II. "There was serious deterioration of morale on the return passage. One man went 'on strike' he refused to cook, would not co-operate and made a mess of steering the raft... A second man lost all hope towards the end and refused to help with the raincatching. There was discontent at Eric de Bisschop being given favourable treatment and rations were stolen."

Sailing boat. Celebes and Arafura Seas.

A forty seven day voyage in wartime through enemy occupied water. Albert Klestadt wrote "To boost morale we talked of what we should do when we reached Australia, as if that were a certainty." Following a mutiny and an attempt on his life "The excitement and the effect of the moral pressure produced a curious physical effect on the crew. They lay in the bottom of the boat and hardly ate or drank. They did not even talk but just stared into space." "Regular readings from the Bible were a source of strength to me."

Raft. South Pacific.

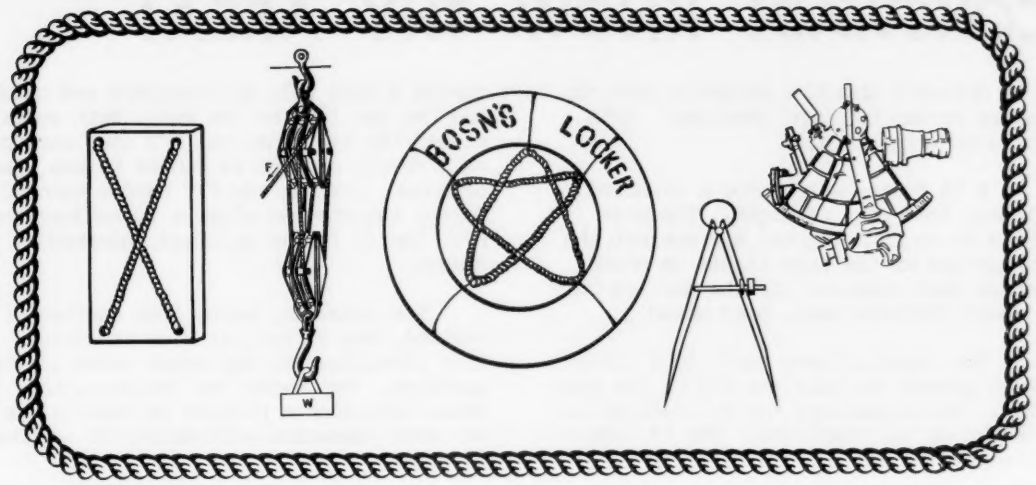
William Willis reported "And then one day I started singing and realised that my soul had been hungering for this... Singing was a miracle that worked for me at all times."

Seafarers who are likely to get into difficulty should prepare themselves by training and keep available a personal survival kit; literature, preferably the Bible, is worth a place in the kit.

Survivors should not lose heart however bad their predicament. Other men have been in very serious circumstances where the chances of rescue were much less than they are today, and have survived by maintaining their morale.

The leader in a group of survivors should promote and maintain good morale. He should be alert for dissident spirits, keep a confident attitude, take everyone into his confidence and keep them interested; be scrupulously fair, and be seen to be fair, in the allocation of rations and endeavour to maintain normal social conventions.

Editor's Note: *The text in this article is reprinted with permission from International Radio-Medical Centre (CIRM) study Exposure at Sea.*



LIMITATIONS OF THE 21' "T" CRAFT

The 21' "T" Craft is not considered suitable nor intended for heavy duty work, and particularly not during periods of small craft warnings when the 41' UTB should be utilized. Based on reports received it appears that the primary use of this type vessel should be restricted to Law Enforcement, MEP responses, and SAR Operations which require quick response in rivers, harbors and bays.

Although the 21' "T" Craft has only five inches of freeboard at the transom a "false" transom is also installed inside the boat. During a recent case the boat went DIW with its transom to the seas. The seas immediately commenced breaking over the five inch transom and the false transom being unable to withstand the volume of water soon collapsed causing the boat to fill with water and sink. Subsequent to this incident a procedure to strengthen the false transom has been developed and details of the process may be obtained from Commander, First Coast Guard District (osr).

ARE THY COXSWAINS QUALIFIED?

A mission that was intended to assist a distressed vessel, ended with a 41' UTB running aground.

The base OOD dispatched the 41 footer toward the position first reported by the distressed unit. While enroute, the UTB coxswain attempted to locate the vessel by making several course changes whenever the distressed vessel revised its position reports. The base OOD was not informed of the course changes or of the UTB's position. It was night, and the coxswain was totally unfamiliar with the area. To coin an old phrase, this mishap was "an accident waiting to happen."

The following additional factors contributed to the grounding: The coxswain of the 41 footer was not qualified IAW CG-313; he had failed an underway navigational test two weeks prior to the accident; the UTB's navigational kit was incomplete. (No Dividers or Compass); the fathometer was not used.

COXSWAIN KNOW THY AREA!

How well should a coxswain know the waters around adjacent stations? This incident tells it all.

A 44 footer was towing a disabled Clammer into port at night. The crew tried to sight a lighted aid against the background of the city lights on shore. Before they realized it, the aid was only a short distance away, dead ahead.

The coxswain gave hard right rudder in an attempt to take the aid of the port side. Unfortunately, the F/V decided to take it on his starboard. The 44 footer attempted to come up behind the F/V, taking a hard roll to starboard and catching the tow line on the aid. Both vessels missed the aid, but, the F/V went aground on a shoal, and the 44 footer became disoriented, putting the F/V harder aground. During the ensuing attempt to refloat the F/V, the 44 footer suffered underbody damage.

The coxswain, being from another station, was unfamiliar with the area. This identified as the major cause of the incident. Following the incident, the Group initiated a program to familiarize all boat coxswains with waters at adjacent stations.

TRANSPACIFIC **Contd... from page 11**

It is not feasible to search an area of almost 1/2 million square miles or more when the chances of the vessel being there are only 37%, and even if it is, the chances of seeing it are only 80%. Simply stated, it is just impractical to search for a vessel overdue between Hawaii and California. The chances of finding the vessel do not come close to making it reasonable to spend the amount of time necessary to search so large an area.

What is needed, before considering conducting a search on a transpacific overdue, is some indication of where the vessel could have been at the time of distress. A phone call to someone via the high seas marine operator, a merchant ship sighting the vessel sometime during the voyage, a radio distress call, or an E.P.I.R.B. (Emergency Position Indicating Radiobeacon) signal, are the kinds of information that would decrease significantly the area where the craft could possibly be located. Only if some kind of amplifying information was available would it then be practical to even consider a search for a vessel overdue between Hawaii and San Diego.

Editor's Note: *This article was prepared by personnel of the Eleventh Coast Guard District. It does demonstrate the problem of long distance overdues. There is a way of relieving the frustration of seemingly doing nothing in a situation as described: mount an electronic search through the high probability areas on a track from one end of the yacht's voyage to the other and then again on return. Most yachts today carry EPIRBS, so that each sweep would electronically sweep out a width of at least 40 miles. And remember, just because no one has reported the EPIRB doesn't mean that the yacht isn't transmitting. There is no guarantee yet that an EPIRB will be heard in all locations. In addition to this, super sensors are just around the corner for search aircraft. Both forward and side-looking radars of the future will yield tremendous sweep widths compared to visual search. And don't forget, high altitude photo-reconaissance has helped in at least one case - reported in ON SCENE issue 3-77. Has anybody got any other ideas?*

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